



# Office Action Summary

Application No.

09/758,963

Applicant(s)

YOSHIDA ET AL.

Examiner

Tuan M Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 31-35 and 39-80 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-35 and 39-80 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
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## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 31-35 and 39-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derry et al (US patent 5,189,679).

With respect to claims 31, 33, 39, 41, 49, 57 and 65, Derry et al disclose a structure (10) comprising a substrate (24), a lower cladding layer (22), an upper cladding layer (20), an active layer (16) disposed between the lower cladding and upper cladding, a first and second electrodes (30, 32), a front facet (12) to the output laser beam, a back facet (14), a cavity length L between

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the front and back facets, the cavity length  $L$  being in the range of  $1000\text{ }\mu\text{m}$  to  $1600\text{ }\mu\text{m}$ ; a low reflectance coating disposed on the front facet having a reflective of 5% and a high reflectance coating disposed on the back facet and having a reflective of more than 80%. Derry does not disclose the front facet having low reflective of less than approximately 4%, the cavity length  $L$  approximately  $1800\text{ }\mu\text{m}$  and the semiconductor laser to operate with an optical output power level  $P_{out}$  that is maintain within a range that is less than or equal to a specified upper bound and greater than or equal to a specified lower bound. However Derry discloses at abstract the rear facet of the device has a high reflectivity coating and the front facet reflectivity and cavity length are adjusted based upon the required output power, for high output power at high temperature, along cavity lengths and low front facet reflectivities are used. Derry also disclose in col.5 starting at line 49, fig 5D illustrate the case in which the back facet reflectivity remains at 95% while the reflectivity of the front facet is reduced to 5%. Such a low reflectivity might be required in some cases to produce high enough output power. However for such an embodiment, a cavity length of  $800\text{ }\mu\text{m}$  or more, and preferably of  $1000\text{ }\mu\text{m}$  or more and in col. 6 lines 15-32, Derry discloses the optimal combination of front facet reflectivity and laser cavity length will therefore depend upon the power requirements for a particular laser and for very high power applications longer laser cavities (e.g.  $1000\text{ }\mu\text{m}$ ) with lower front facet reflectivity can be used, note col. 1 line 45 to col. 8 line 67, see figures 1 and 4-10. Since it has been held that discovering an optimum value of a result effect variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).



With respect to claims 32, 34-35 and 40, Derry et al disclose an active layer (16) forming a cavity with the cavity length has a strain multiple quantum well (18), note col. 8 line 30, see fig. 1.

With respect to claims 42-48, 50-56, 58-64 and 66-80, Derry et al disclose the optical output power is determine by the relationship between front facet reflectivity, rear facet reflectivity and cavity length L. For example figure 5D illustrates the case in which the back facet reflectivity remain at 95%, while the reflectivity of the front facet is reduced to 5%. Such a low reflectivity might be required in some cases to produce high enough power output. However for such an embodiment, a cavity length of 800 microns or more, and preferable of 1000 microns or more. Derry et al also discloses for very high power application, longer laser cavities (e.g. 1000 microns) with low front facet reflectivity can be used, note cols. 5-6 starting at line 49. Since it has been held that discovering an optimum value of a result effect variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 31-35 and 39-80 have been considered but are moot in view of the new ground(s) of rejection.

### **Citation Of The Pertinent References**

4. The prior art made of record and not relied upon us considered pertinent to applicant's disclose.

The patent to Pezeshki et al (US Pub 2002/0064203) disclose strip loaded tunable distributed feedback laser.

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The patent to Yamamoto et al (US patent 4,720,834) disclose internal reflection interference semiconductor laser device.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

#### ***Communication Information***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247. The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.



Paul Ip

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August 6, 2003